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National Aeronautics and
Space Administration

October 30, 1995

NRA 95-OSS-17

RESEARCH ANNOUNCEMENT

HIGH ENERGY ASTROPHYSICS
SUPPORTING RESEARCH
AND
TECHNOLOGY
PROGRAM

Appendices A-E

Letters of Intent Due: December 1, 1995
Proposals Due: February 1, 1996

COMPLETED

NASA RESEARCH ANNOUNCEMENT

HIGH ENERGY ASTROPHYSICS

SUPPORTING RESEARCH AND TECHNOLOGY

PROGRAM

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THE HIGH ENERGY ASTROPHYSICS SUPPORTING RESEARCH AND TECHNOLOGY PROGRAM

I. SCOPE

This program is intended to provide basic support of the NASA High Energy Astrophysics (HEA) program. It should be noted that, in addition to the basic scientific merit of the proposed research, its relevance to NASA's HEA flight programs, both existing and planned, will be a significant factor in the proposal evaluation. A summary of the scientific goals of the HEA program is provided in Section III. This NRA solicits proposals for scientific investigations of cosmic phenomena via observations of their radiation in the high-energy spectral regime (~ 0.1 keV - 10 GeV). These investigations are expected to involve the design and development of scientific instruments and the construction of payloads for sounding rocket flights and high-altitude balloons. Investigations involving theoretical studies or analysis of data from past missions **are not** solicited by this Announcement. In addition, proposals for investigations involving ground-based observations of high-energy astrophysical phenomena will only be considered under this NRA to the extent that they are relevant to the overall goals of NASA's HEA Flight Program.

The total funding available for this program is presently expected to be approximately $9 million per year over the period of this NRA. There are no restrictions on the level of funding which may be requested for an investigation under this program. During the present year, ~40 grants are being supported at a total level of $9 million.

II. PROGRAM DURATION AND PROPOSAL SCHEDULE

The HEA Supporting Research and Technology (SR&T) Program is a continuing program. This NRA represents the merging of the previously separate solicitations for NASA's x-ray and γ-ray SR&T programs. The awards made under this NRA will be effective at the start of FY 1997 (October 1, 1996). The FY 1996 funding levels for existing grantees supported under the x-ray astronomy program will be those determined under NRA 93-OSS-03. For existing γ-ray grantees, an additional 6-month extension will be made, prorated on the FY 1995 funding level. Subsequent

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bridge funding for the remainder of FY 1996 will be provided, pending the outcome of the present review.

Current plans call for a new issuance of a NASA Research Announcement soliciting proposals for participation in this program approximately every 3 years. Proposers are encouraged to define an investigation which may be accomplished in a 3-year period. It is recognized that the proposed investigation may evolve with time. Accordingly, emphasis should be placed upon the first year's effort with as much detail as possible provided relevant to the planned second and third years' activities. Similarly, a detailed budget corresponding to the first-year program is required, together with as reliable an estimate as feasible of the projected budget for the succeeding years. It should be recognized that NASA can commit financial support on a 1-year basis only. Proposals for investigations requiring less than a 3-year time scale to complete are also acceptable, as are those which require a longer time scale to complete. In the latter case, the key projected activities beyond the initial 3-year period of the proposed effort should be identified.

Although unsolicited proposals relevant to NASA's HEA SR&T Program may be submitted at any time, such proposals will be treated and considered as if submitted in response to this NRA. Unsolicited proposals received that fall within the scope of an open NRA will be reviewed and evaluated at the same time and with any proposals received in response to that NRA. The next review of the HEA SR&T program is planned for shortly after the due date given on page 5 of the body of this NRA. Proposals received on or before that due date will be included in that review. Proposals received after that date will be considered late and their disposition will be at the discretion of the HEA Program Office, in accordance with the NASA policy on late proposals as stated in Appendix B, Paragraph 11 and the NASA FAR Supplement section 18-15.412. Unsolicited proposals received in the interim between the review for this NRA and the issuance of a subsequent solicitation (anticipated to occur at 3-year intervals) will be considered on a case-by-case basis in the context of the available funding at that time.

To facilitate planning for the peer review process, individuals who intend to submit proposals in response to this solicitation should submit (via email) a Letter of Intent as stipulated on page 5 of the body of this NRA (see also Appendix D, Section I.A for more details).

III. THE HIGH ENERGY ASTROPHYSICS FLIGHT PROGRAM

The Office of Space Science administers a vigorous program of space-based missions and suborbital investigations in the areas of x- and γ-ray astrophysics. The HEA program is directed

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toward investigations of astrophysical objects and phenomena as revealed by their radiation characteristics over the approximate energy range 0.1 keV - 10 GeV. The scientific objectives of this program include determination of the nature and physical parameters of such high-energy astrophysical systems as active stellar coronae, collapsed objects (white dwarfs, neutron stars, and black holes), γ-ray bursts, compact binary systems and associated accretion disks, supernova remnants, the hot phase of the interstellar medium, normal and active galaxies, clusters of galaxies, dark matter, and the diffuse x-ray and γ-ray background. A compilation of relevant NASA high-energy astrophysics missions and collaborative international programs (past, ongoing, and planned) is provided in Tables 1 and 2, and typical research areas presently supported under the HEA SR&T program are listed in Tables 3 and 4. Detailed summaries of the near-term goals of NASA's HEA program are provided in the most recent reports of NASA's X-ray and γ-ray Astronomy Program Working Groups. These reports represent a blueprint for NASA's objectives in the area of high-energy astrophysics, over the next decade or so, and should be consulted to assess the potential relevance of proposed investigations. Copies of the reports are available upon request.

IV. PROGRAM MANAGEMENT INFORMATION

NASA's HEA Supporting Research and Technology Program is managed by the Office of Space Science, Code S, National Aeronautics and Space Administration, Washington, DC 20546-0001. Questions regarding proposal format, evaluation procedures, or requests for further general information concerning the HEA program should be referred to the Staff Scientist named on page 5 of the body of this NRA.

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TABLE 1 -- NASA X-RAY ASTRONOMY MISSIONS

MISSION	PRIMARY EMPHASIS
Small Astronomy Satellite-1 (SAS-1; "UHURU")	All-Sky X-ray Survey
Orbiting Solar Observatory-8 (OSO-8)	Solar and Cosmic X-ray Source Observations
Small Astronomy Satellite-3 (SAS-3)	Timing /Positioning Observations of Selected Cosmic X-ray Sources
High Energy Astronomy Observatory-1 (HEAO-1)	All-Sky X-ray Survey and Spectrophotometric Observations of Selected Cosmic X-ray Sources
High Energy Astronomy Observatory-2 (HEAO-2; *Einstein*)	Imaging and Spectroscopic Observations of Selected Cosmic X-ray Sources
Broad Band X-ray Telescope (Astro/BBXRT)	Non-Dispersive Spectroscopic Observations of Selected Cosmic X-ray Sources
Diffuse X-ray Spectrometer (DXS)	Spectroscopic Observations of the Soft X-ray Diffuse Background
Roentgen Satellite* (ROSAT)	All-Sky X-ray/EUV Survey and Imaging Observations of Selected Cosmic X-ray Sources
Asuka (ASCA, formerly ASTRO-D)*	Spatially-Resolved Spectroscopic Observations of Selected Cosmic X-ray Sources
Satelite de Aplicaciones Cientificas-B (SAC-B/CUBIC)	All-Sky Spectroscopic Survey of the Cosmic Diffuse X-ray Background
X-ray Timing Explorer (XTE)	Spectrophotometric Observations of Selected Cosmic X-ray Sources
Advanced X-ray Astrophysics Facility (AXAF)	High-Resolution Imaging/Spectroscopic Observations of Selected Cosmic X-ray Sources
Spectrum-X-Gamma*	High-Throughput, Moderate-Resolution Imaging, Spectroscopic and Polarimetric Observations of Selected Cosmic X-ray Sources
X-ray Multi-Mirror Mission* (XMM)	High-Throughput, Moderate-Resolution Imaging, Spectroscopic Observations of Selected Cosmic X-ray Sources
ASTRO-E*	Spatially-Resolved Spectroscopic Observations of Selected Cosmic X-ray Sources

* International Collaboration

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TABLE 2 – NASA γ-RAY ASTRONOMY MISSIONS

MISSION	PRIMARY EMPHASIS
Small Astronomy Satellite-2 (SAS-2)	All-Sky High Energy Survey
Orbiting Solar Observatory-7 (OSO-7)	All-Sky Intermediate Energy Survey
High Energy Astronomy Observatory-1 (HEAO-A4)	All-Sky Intermediate Energy Survey
High Energy Astronomy Observatory-3 (HEAO-C1)	All-Sky High Resolution Spectroscopic Survey
Solar Maximum Mission Astronomy (SMM)	Solar and Cosmic X- and Gamma-ray
International Sun-Earth Explorer/ International Cometary Explorer (ISEE/ICE)	Gamma-ray Bursts
Compton Gamma-ray Observatory (GRO)	All-Sky Wide-Band Survey
Global Geospace Program (GGS [Wind/TGRS/Konus])	Gamma-ray Burst Spectroscopy
High-Energy Transient Experiment (HETE)	Gamma-ray Burst Position Determination
INTEGRAL*	High-Resolution Spectroscopy
MARS94/Precision Gamma-ray Spectrometer* (PGS)	Gamma-ray Burst Spectroscopy

* International Collaboration

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TABLE 3

CURRENT X-RAY ASTRONOMY RESEARCH AREAS

RESEARCH AREA	TECHNIQUE
High-resolution Imaging	Microchannel Plate Detectors Charge-coupled Devices
High-resolution Spectroscopy (Non-dispersive)	Microcalorimeters; Superconducting Tunnel Junctions
High-resolution Spectroscopy (Dispersive)	Reflection and Transmission Gratings Bragg-Crystal Spectrometers
High-throughput X-ray Optics	Conical Foil Mirrors; Kirkpatrick-Baez Glass Mirrors; Electroformed Wolter-I Mirrors
Very-high Resolution X-ray Optics	Azimuthal Mirror Sections
Polarimetry	Lithium Scattering; Bragg Crystals
Timing	Advanced Proportional Counters

TABLE 4

CURRENT γ-RAY ASTRONOMY RESEARCH AREAS

RESEARCH AREA	TECHNIQUE
Hard X-ray Imaging Spectroscopy	Coded-Aperture/Scintillator Telescopes; High-pressure Xenon Detectors; Cd Zn Te Detectors
Nuclear Line Spectroscopy	Germanium Detector Arrays; Scintillator Telescopes; Liquid Argon/Xenon Detectors; Superconducting Transition Detectors
Gamma-Burst Timing/Spectroscopy	Omni-Directional Scintillator/Germanium Detectors
Intermediate-energy Gamma-ray Astronomy	Compton Telescopes
High-energy Gamma-ray Astronomy	Drift Chamber Telescopes; Si strip detectors

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Appendix B

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GUIDELINES FOR RESPONDING TO NASA RESEARCH ANNOUNCEMENTS FOR SOLICITED BASIC RESEARCH PROPOSALS

(AUGUST 1988)

1. Foreword

a. NASA depends upon industry, educational institutions, and other nonprofit organizations for most of its research efforts. While a number of mechanisms have been developed over the years to inform the research community of those areas in which NASA has special research interests, these instructions apply only to "NASA Research Announcements," a form of "broad agency announcements" described in 6.102(d)(2) and 35.016 of the Federal Acquisition Regulation (FAR). The "NASA Research Announcement (NRA)" permits competitive selection of research projects in accordance with statute while at the same time preserving the traditional concepts and understanding associated with NASA sponsorship of research.

b. These instructions are Appendix I to 18-70.203 of the NASA Federal Acquisition Regulation Supplement.

2. Policy

a. NASA fosters and encourages the submission of research proposals relevant to agency mission requirements by solicitations, "NASA Research Announcements," which describe research areas of interests to NASA. Proposals received in response to an NRA will be used only for evaluation purposes.

b. NASA does not allow a proposal the contents of which are not available without restriction from another source, or any unique ideas submitted in response to an NRA to be used as the basis of a solicitation or in negotiation with other organizations, nor is a pre-award synopsis published for individual proposals.

c. A solicited proposal that results in a NASA award becomes part of the record of that transaction and may be available to the public on specific requests; however, information or materials that NASA and the awardees mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law, including the Freedom of Information Act.

3. Purpose

These instructions are intended to supplement documents identified as "NASA Research Announcements." The NRA's contain programmatic information and certain "NRA-specific" requirements which apply only to proposals prepared in response to that particular announcement. These instructions contain the general proposal preparation information which applies to responses to all NRA's.

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4. Relationship To Award

a. A grant or other agreement may be used to accomplish an effort funded on the basis of a proposal submitted in response to an NRA.

b. Grants are generally used to fund basic research in educational and nonprofit institutions. Any resultant grants or cooperative agreements will be awarded and administered in accordance with the NASA Research Grant Handbook (NHB 5800.1).

5. Conformance To Guidance

a. NASA does not have any mandatory forms or formats for preparation of responses to NRA's; however, it is requested that proposals conform to the procedural and submission guidelines covered in these instructions. In particular, NASA may accept proposals without discussion; hence, proposals should initially be as complete as possible and be submitted on the proposers' most favorable terms.

b. In order to be considered responsive to the solicitation, a submission must, at a minimum, present a specific project within the areas delineated by the NRA; contain sufficient technical and cost information to permit a meaningful evaluation; be signed by an official authorized to legally bind the submitting organization; not merely offer to perform standard services or to just provide computer facilities or services; and not significantly duplicate a more specific current or pending NASA solicitation. NASA reserves the right to reject any or all proposals received in response to an NRA when such action is considered in the best interest of the Government.

6. NRA-Specific Items

a. Several proposal submission items will appear in the NRA itself. These include: the unique NRA identifier, when to submit proposals, where to send proposals, number of copies required, and sources for more information.

b. Items included in these instructions may be supplemented by the NRA, as circumstances warrant. Examples are: technical points for specific emphasis; additional evaluation factors; and proposal length.

7. Proposal Contents

a. The following general information is needed in all proposals in order to permit consideration in an objective manner. NRA's will generally specify topics for which additional information or greater detail is desirable. Each proposal copy shall contain all submitted material including a copy of the transmittal letter if it contains substantive information.

b. Transmittal Letter or Prefatory Material

(1) The legal name and address of the organization and specific division or campus identification if part of a larger organization;

(2) A brief, scientifically valid project title intelligible to a scientifically literate reader and suitable for use in the public press;

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(3) Type of organization: e.g., profit, nonprofit, educational, small business, minority, women-owned, etc.;

(4) Name and telephone number of the principal investigator and business personnel who may be contacted during evaluation or negotiation;

(5) Identification of any other organizations that are currently evaluating a proposal for the same efforts;

(6) Identification of the specific NRA, by number and title, to which the proposal is responding;

(7) Dollar amount requested of NASA, desired starting date, and duration of project;

(8) Date of submission; and

(9) Signature of a responsible official or authorized representative of the organization, or any other person authorized to legally bind the organization (unless the signature appears on the proposal itself).

c. Restriction on Use and Disclosure of Proposal Information

It is NASA policy to use information contained in proposals for evaluation purposes only. While this policy does not require that the proposal bear a restrictive notice, offerors or quoters should, in order to maximize protection of trade secrets or other information that is commercial or financial and confidential or privileged, place the following notice on the title page of the proposal and specify the information subject to the notice by inserting appropriate identification, such as page numbers, in the notice. In any event, information (data) contained in proposals will be protected to the extent permitted by law, but NASA assumes no liability for use and disclosure of information not made subject to the notice.

NOTICE

Restriction on Use and Disclosure of Proposal Information

The information (data) contained in [insert page numbers or other identification of this proposal constitutes a trade secret and/or information that is commercial or financial and confidential or privileged. It is furnished to the Government in confidence with the understanding that it will not, without permission of the offeror, be used or disclosed other than for evaluation purposes; provided, however, that in the event an agreement is awarded on the basis of this proposal, the Government shall have the right to use and disclose this information (data) to the extent provided in the agreement. This restriction does not limit the Government's right to use or disclose this information (data) if obtained from another source without restriction.

d. Abstract

Include a concise (200-300 word if not otherwise specified in the NRA) abstract describing the objective of the proposed effort and the method of approach.

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e. Project Description

(1) The main body of the proposal shall be a detailed statement of the work to be undertaken and should include objectives and expected significance, relation to the present state of knowledge in the field, and relation to previous work done on the project and to related work in progress elsewhere. The statement should outline the general plan of work, including the broad design of experiments to be undertaken and an adequate description of experimental methods and procedures. The project description should be prepared in a manner that addresses the evaluation factors in these instructions and any additional specific factors in the NRA. Any substantial collaboration with individuals not referred to in the budget or use of consultants should be described. Note, however, that subcontracting significant portions of a research project is discouraged.

(2) When it is expected that the effort will require more than 1 year for completion, the proposal should cover the complete project to the extent that it can be reasonably anticipated. Principal emphasis should, of course, be on the first year of work, and the description should distinguish clearly between the first year's work and work planned for subsequent years.

f. Management Approach

For large or complex efforts involving interactions among numerous individuals or other organizations, plans for distribution of responsibilities and any necessary arrangements for ensuring a coordinated effort should be described. Aspects of any required intensive working relation with NASA field centers that are not logical inclusions elsewhere in the proposal should be described in this section.

g. Personnel

The principal investigator is responsible for direct supervision of the work and participates in the conduct of the research regardless of whether or not compensation is received under the award. A short biographical sketch of the principal investigator, a list of principal publications, and any exceptional qualifications should be included. Omit social security number and other personal items which do not merit consideration in evaluation of the proposal. Give similar biographical information on other senior professional personnel who will be directly associated with the project. Give the name and titles of any other scientists and technical personnel associated substantially with the project in an advisory capacity. Universities should list the approximate number of students or other assistants together with information as to their level of academic attainment. Any special industry-university cooperative arrangements should be described.

h. Facilities and Equipment

(1) Describe available facilities and major items of equipment especially adapted or suited to the proposed project and any additional major equipment that will be required. Identify any Government-owned facilities, industrial plant equipment, or special tooling that are proposed for use on the project.

(2) Before requesting a major item of capital equipment, the proposer should determine if sharing or loan of equipment already within the organization is a feasible alternative to purchase. Where such arrangements cannot be made, the proposal should so state. The need for items that typically can be used for both research and nonresearch purposes should be explained.

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i. Proposed Costs

(1) Proposals should contain cost and technical parts in one volume: do not use separate "confidential" salary pages. As applicable, include separate cost estimates for salaries and wages, fringe benefits, equipment, expendable materials and supplies, services, domestic and foreign travel, ADP expenses, publication or page charges, consultants, subcontractors, other miscellaneous identifiable direct costs, and indirect costs. List salaries and wages in appropriate organizational categories (e.g., principal investigator, other scientific and engineering professionals, graduate students, research assistants, and technicians and other nonprofessional personnel). Estimate all manpower data in terms of man-months or fractions of full time.

(2) Explanatory notes should accompany the cost proposal to provide identification and estimated cost of major capital equipment items to be acquired; purpose and estimated number and lengths of trips planned, basis for indirect cost computation (including date of most recent negotiation and cognizant agency), and clarification of other items in the cost proposal that are not self-evident. List estimated expenses as yearly requirements by major work phases (Standard Form 1411 may be used).

(3) Allowable costs are governed by FAR Part 31 and the NASA FAR Supplement Part 18-31 (and OMB Circulars A-21 for educational institutions and A-122 for nonprofit organizations).

j. Security

Proposals should not contain security classified material. However, if the proposed research requires access to or may generate security classified information, the submitter will be required to comply with applicable Government security regulations.

k. Current Support

For other current and pending projects being conducted by the principal investigator, provide title of project, sponsoring agency, and ending date.

l. Special Matters

(1) Include any required statements of environmental impact of the research, human subject or animal care provisions, conflict of interest, or on such other topics as may be required by the nature of the effort and current statutes, executive orders, or other current Government-wide guidelines.

(2) Proposers should include a brief description of the organization, its facilities, and previous work experience in the field of the proposal. Identify the cognizant Government audit agency, inspection agency, and administrative officer, when applicable.

8. Renewal Proposals

a. Renewal proposals for existing awards will be considered in the same manner as proposals for new endeavors. It is not necessary that renewal proposals repeat all of the information that was in the original proposal upon which the current support was based. The renewal proposal should refer to its predecessor, update the parts that are no longer current, and indicate what elements of the research are expected to be covered during the period for which extended support is desired. A description of any significant findings since the most recent progress

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report should be included. The renewal proposals should treat, in reasonable detail, the plans for the next period, contain a cost estimate, and otherwise adhere to these instructions.

b. NASA reserves the right to renew an effort either through amendment of an existing arrangement or by a new award.

9. Length

Unless otherwise specified in the NRA, every effort should be made to keep proposals as brief as possible, concentrating on substantive material essential for a complete understanding of the project. Experience shows that few proposals need exceed 15-20 pages. Any necessary detailed information, such as reprints, should be included as enclosures rather than in the main body of the proposal. A complete set of enclosures is necessary for each copy of the proposal. As proposals are not returned, avoid use of "one-of-a-kind" enclosures; their availability may be mentioned in the proposal.

10. Joint Proposals

a. Some projects involve joint efforts among individuals in different organizations or mutual efforts of more than one organization. Where multiple organizations are involved, the proposal may be submitted by only one of them. In this event, it should clearly describe the role to be played by the other organizations and indicate the legal and managerial arrangements contemplated. In other instances, simultaneous submission of related proposals from each organization might be appropriate, in which case parallel awards would be made.

b. Where a project of a cooperative nature with NASA is contemplated, the proposal should describe the contributions expected from any participating NASA investigator and agency facilities or equipment which may be required. However, the proposal must be confined only to that which the proposing organization can commit itself. "Joint" proposals which purport to specify the internal arrangements NASA will actually make are not acceptable as a means of establishing an agency commitment.

11. Late Proposals

A proposal or modification thereto received after the date or dates specified in an NRA may still be considered if the selecting official deems it to offer NASA a significant technical advantage or cost reduction.

12. Withdrawal

Proposals may be withdrawn by the proposer at any time. Offerors are requested to notify NASA if the proposal is funded by another organization or other changed circumstances which dictate termination of evaluation.

13. Evaluation Factors

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a. Unless otherwise specified in the NRA, the principal elements (of approximately equal weight) considered in evaluating a proposal are its relevance to NASA's objectives, intrinsic merit, and cost.

b. Evaluation of a proposal's relevance to NASA's objectives includes the consideration of the potential contribution of the effort to NASA's mission.

c. Evaluation of its intrinsic merit includes the consideration of the following factors, none of which is more important than any other:

(1) Overall scientific or technical merit of the proposal or unique and innovative methods, approaches, or concepts demonstrated by the proposal;

(2) The offeror's capabilities, related experience, facilities, techniques, or unique contributions of these which are integral factors for achieving the proposal objectives;

(3) The qualifications, capabilities, and experience of the proposed principal investigator, team leader, or key personnel who are critical in achieving the proposals objectives;

(4) Overall standing among similar proposals available for evaluation and/or evaluation against the known state of the art.

d. Evaluation of the cost of a proposed effort includes the consideration of the realism and reasonableness of the proposed cost and the relationship of the proposed cost to available funds.

14. Evaluation Techniques

Selection decisions will be made following peer and/or scientific review of the proposals. Several evaluation techniques are regularly used within NASA. In all cases, however, proposals are subject to scientific review by discipline specialists in the area of the proposal. Some proposals are reviewed entirely in-house where NASA has particular competence; others are evaluated by a combination of in-house people and selected external reviewers; while yet others are subject to the full external peer review technique (with due regard for conflict-of-interest and protection of proposal information), such as by mail or through assembled panels. Regardless of the technique, the final decisions are always made by a designated NASA selecting official. A proposal which is scientifically and programmatically meritorious, but which is not selected for award during its initial review under the NRA, may be included in subsequent reviews unless the proposer requests otherwise.

15. Selection for Award

a. When a proposal is not selected for award, and the proposer has indicated that the proposal is not to be held over for subsequent reviews, the proposer will be notified that the proposal was not selected for award. NASA will notify the proposer and explain generally why the proposal was not selected. Proposers desiring additional information may contact the selecting official who will arrange a debriefing.

b. When a proposal is selected for award, negotiation and award will be handled by the procurement office in the funding installation. The proposal is used as the basis for negotiation with the submitter. Formal RFP's are not used to obtain additional information on a proposal selected under the NRA process. However, the contracting officer may request certain business data and may forward a model agreement and other information which will be of use during the negotiation.

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16. Cancellation of NRA

NASA reserves the right to make no awards under this NRA and, in the absence of program funding or for any other reason, to cancel this NRA by having a notice published in the Commerce Business Daily. NASA assumes no liability for canceling the NRA or for anyone's failure to receive actual notice of cancellation. Cancellation may be followed by issuance and synopsis of a revised NRA, since amendment of an NRA is normally not permitted.

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GUIDELINES FOR PREPARATION OF PROPOSAL COST SUMMARIES

I. PROPOSAL COSTING DETAIL

Sufficient proposal cost detail and supporting information will facilitate a timely evaluation and award for selected proposals. Dollar amounts proposed with no explanation (e.g., Equipment: $58,000 or Labor: $110,000) may cause delays in proposal evaluation and award.

The proposed costing information should be sufficiently detailed to allow the Government to identify costed elements for evaluation purposes. Costs which are unreasonable, unallowable, or not allocable to the proposed effort will not be awarded. Each budget category should be explained. Offerors should exercise prudent judgment regarding the amount of detail necessary depending upon the complexity of the proposal. Where applicable, the cost section should include a breakdown by year and a total for all periods. While it is not mandatory that cost proposals conform exactly to these guidelines, information supplied at the level of detail shown in Section II will expedite the processing of the grant procurements for selected proposals.

II. EXAMPLES

The number and nature of the appropriate cost categories will vary with the particular plan for each proposed investigation. Examples of the level of detail requested for typical categories are provided below.

A. Direct Labor

Labor costs should be segregated by titles or disciplines with estimated hours and rates for each. Estimates should include a basis of estimate such as currently paid rates or outstanding offers to prospective employees. This format allows the Government to assess cost reasonableness by various means including comparison to similar skills at other organizations. Example:

	Hours	Rate	Amount
Principal Investigator	1,295	$19.34	$25,045
Assistant Investigator	330	$11.78	$ 3,887
Clerical Support	125	$ 8.70	$ 1,088
Total	1,750		$30,020

B. Travel Costs

Costs in this category should be provided as shown in the following example:

Trips	Destination	Duration	Airfare	Per diem	Total
1	Australia	6 days	$1,234	$550	$1,784
2	New Zealand	4 days	$1,456	$366	$3,644
Total					$5,428

C. Equipment Purchases

Costs in this category should be provided at the level of detail reflected in the following example:

Units	Type	Cost	Total
4	Pulse Height Analyzer	$4,399	$17,596

D. Indirect Costs

Indirect costs should be explained to an extent that will allow the Government to understand the basis for the estimate. Examples of prior year historical rates, current variances from those rates, or an explanation of other basis of estimates should be included.

Where costs are based on allocation percentages or dollar rates, an explanation of rate and application base relationships should be given. For example, the base to which the General and Administrative (G&A) rate is applied should be explained as: application base equals total costs before G&A less subcontracts.

E. Other Costs

Other applicable cost categories include purchase of expendable materials, computer services, communications costs, and publication expenses. The appropriate level of detail should be provided in each case.

III. BUDGET SUMMARY

Budget information should be summarized using the form supplied below (note additional instructions on the reverse side of the form).

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Budget Summary:

From _____ to _____

	NASA USE ONLY		
	A	B	C
1. Direct Labor (salaries, wages, and fringe benefits)			
2. Other Direct Costs:			
a. Subcontracts			
b. Consultants			
c. Equipment			
d. Supplies			
e. Travel			
f. Other			
3. Indirect Costs			
4. Other Applicable Costs			
5. Subtotal--Estimated Costs			
6. Less Proposed Cost Sharing (if any)			
7. Carryover Funds (if any) a. Anticipated amount _____ b. Amount used to reduce budget			
8. Total Estimated Costs			XXXXXXX
APPROVED BUDGET	XXXXXXX	XXXXXXX	

Instructions

1. Provide a separate budget summary sheet for each year of the proposed research.
2. Grantee estimated costs should be entered in Column A. Columns B and C are for NASA use only. Column C represents the approved grant budget.
3. Provide in attachments to the budget summary the detailed computations of estimates in each cost category, along with any narrative explanation required to fully explain proposed costs.

ADDITIONAL INSTRUCTIONS ON REVERSE

Specific Costs

1. Direct Labor (salaries, wages, and fringe benefits). Attachments should list number and titles of personnel, amount of time to be devoted to the grant, and rates of pay.

2. Other Direct Costs:

   a. Subcontracts - Attachments should describe the work to be subcontracted, estimated amount, recipient (if known), and the reason for subcontracting this effort.

   b. Consultants - Identify consultants to be used, why they are necessary, time to be spent on the project, and rates of pay (not to exceed the equivalent of the daily rate for GS-18 in Federal service, excluding expenses and indirect cost.)

   c. Equipment - List separately and explain the need for items of equipment exceeding $1,000. Describe the basis for the estimated cost. General purpose, non-technical equipment is not allowable as a direct cost to NASA grants unless specifically approved by the grant officer.

   d. Supplies - Provide general categories of needed supplies, the method of acquisition, estimated cost, and the basis for the estimate.

   e. Travel - List proposed trips individually, describe their purpose in relation to the grant, provide dates, destination, and number of travellers where known, and explain how the cost for each was derived.

   f. Other - Enter the total of any other direct costs not covered by 2.a. through 2.e. Attach an itemized list explaining the need for each item and the basis for the estimate.

3. Indirect Costs - Identify indirect cost rate(s) and base(s) as approved by the cognizant Federal agency, including the effective period of the rate. Provide the name, address, and telephone number of the Federal agency and official having cognizance over such matters for the institution. If unapproved rates are used, explain why and include the computational basis for the indirect expense pool and corresponding allocation base for each rate.

4. Other Applicable Costs - Enter the total of any other applicable costs. Attach an itemized list explaining the need for each item and the basis for the estimate.

5. Subtotal-Estimated Costs - Enter the sum of items 1., 2.a. through 2.f., 3., and 4.

6. Less Proposed Cost Sharing (if any) - Enter the amount proposed, if any. If cost sharing is based on specific cost items, identify each item and amount in attachment.

7. Carryover Funds (if any) - Enter the dollar amount of any funds that are expected to be available for carryover from the prior budget period. Identify how the funds will be used if they are not used to reduce the budget. NASA officials will decide whether to use all or part of the anticipated carryover to reduce the budget. Not applicable to 2nd-year and subsequent-year budgets submitted for the award of a multiple year grant.

8. Total Estimated Costs - Enter the total after subtracting items 6. and 7.b. from item 5.

ADDITIONAL INFORMATION REGARDING PROPOSAL SUBMISSION, EVALUATION, SELECTION, AND IMPLEMENTATION

The information contained in Appendix D augments/supersedes Appendix B and is applicable only to NRA 95-OSS-17.

I. PROPOSAL PREPARATION AND SUBMISSION

A. Letter of Intent to Propose

To facilitate planning for the proposal evaluation process and the timely selection of a scientific peer review panel, it will be useful if prospective investigators intending to submit proposals for participation in this program will notify NASA via email, as stipulated on page 5 of the body of this NRA. The letter of intent should contain the name and affiliation of the principal investigator and all co-investigators, and should summarize the primary research areas and objectives of the proposed investigation.

B. Proposal Preparation Procedures

A uniform proposal format is recommended to aid in proposal evaluation. Proposals:

1. Should contain a scientific and technical (as appropriate) description of the investigation and a cost plan (see Appendix C);

2. For investigators presently supported under this program, should include a discussion of past grant-related performance;

3. Should include a **complete listing of all awarded or pending research funding support** from NASA or other sources for the principal investigator and all co-investigators;

4. Must be limited in length to 25 pages or less, including cover page (Appendix E, Parts 1 and 2), abstract, proposal body, references, short vitae, selected bibliography, and costing. Use a type-face no smaller than 10 point with 1-inch margins and single-spaced lines. Reviewers will be instructed and obligated to review only the first 25 pages;

5. Should not include reprints or preprints - where appropriate, such work should be summarized in the body of the proposal;

6. Must be accompanied by institutional certifications expressing compliance with Federal regulations regarding lobbying, debarment and suspension, and drug-free workplace.

C. Proposal Submission Information

The requisite number of copies of each proposal should be submitted to the address specified on page 5 of the body of this NRA, no later than the date given on that same page.

D. Foreign Investigations

Proposals from non-U.S. entities should not include a cost plan. Non-U.S. proposals and U.S. proposals which include non-U.S. participation must be endorsed by the respective government agency or funding/sponsoring institution in that country from which the non-U.S. participation is proposing. Such endorsement should indicate:

1. The proposal merits careful consideration by NASA; and

2. If the proposal is selected, sufficient funds will be made available to undertake the activity proposed.

The required number of proposals should be sent directly to the address given on page 5 of the NRA in time to arrive before the stated deadline. At the same time, one copy each of the proposal and the letter of endorsement should be sent to:

Ms. Shiron D. Gaines
Ref: NRA 95-OSS-17
International Relations Division
Code IRD
National Aeronautics and Space Administration
Washington, DC 20546-0001
USA

All proposals must be typewritten in English. All non-U.S. proposals will undergo the same evaluation and selection process as those originating in the United States. Non-U.S. proposals and U.S. proposals which include foreign participation must follow all other guidelines and requirements defined in this NRA.

All proposals must be received before the established closing date; those received after the closing date will be treated in accordance with NASA's provisions for late proposals (FAR Supplement 18-15-412, paragraphs A and B). If review and endorsement are not possible before the specified closing date, sponsoring non-U.S. agencies may, in exceptional situations, forward a proposal without endorsement to NASA's International Relations Division, Code IRD, along with the date when a decision on endorsement can be expected.

Successful and unsuccessful proposers will be contacted directly by the NASA Program Office coordinating the NRA. Copies of these letters will be sent to the sponsoring agency.

Should a non-U.S. proposal or a U.S. proposal with non-U.S. participation be selected, NASA's International Relations Division will arrange with the non-U.S. sponsoring agency for the proposed participation on a no-exchange-of-funds basis, in which NASA and the non-U.S. sponsoring agency will each bear the cost of discharging its respective responsibilities. Depending on the nature and extent of the proposed cooperation, these arrangements may entail:

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1. A letter of notification by NASA; and/or

2. An exchange of letters between NASA and the sponsoring governmental agency.

II. PROPOSAL SELECTION

A. Evaluation and Selection Procedures

The scientific and technical merits of proposals will be evaluated by a scientific peer review panel. The highest rated proposals will then be considered in the context of the overall funding availability and programmatic needs. Final selection will be made by the Associate Administrator, Office of Space Science.

B. Evaluation Criteria

The following specific proposal-related evaluation criteria, listed in descending order of importance, will be used in evaluating proposals for investigations within the HEA SR&T program **(note that these criteria supersede those listed in Appendix B)**:

1. The overall scientific and technical merit of the investigation.

2. The relevance of the proposed research to NASA's HEA program.

3. The technical feasibility of accomplishing the stated scientific goals (i.e., the viability and maturity of the proposed technical approach or analysis techniques and their suitability for the proposed investigation).

4. The competence and relevant experience of the principal investigator and any collaborators as an indication of their ability to carry the investigation to a successful conclusion within the requested resources, including timely publication of peer-reviewed journal articles. Past performance of the investigators relevant to work conducted under previous NASA HEA grants, if applicable, will be considered.

5 Overall standing among similar proposals available for evaluation and/or evaluation against the known state of the art.

6. The realism and reasonableness of the proposed cost and the relationship of the proposed cost to available funds.

Note that NASA may desire to select only a portion of a proposer's investigation, in which case the investigator will be given the opportunity to accept or decline such partial acceptance.

C. Implementation

Individuals responding to this Announcement will be notified of the outcome of the proposal selection process in accordance with the schedule outlined in this NRA. In the case of those investigations recommended for selection, discussions will be initiated concerning the specific terms under which the investigation will be implemented.

III. SCHEDULE

It is currently planned to solicit and review proposals for participation in the HEA SR&T program approximately every 3 years. Proposals received by the due date herein stipulated will be evaluated in the present review. The schedule of planned activities for the present review cycle of the HEA SR&T program is given on page 5 of the body of this NRA, with the Peer Review expected to be convened approximately 5 weeks after the due date, proposal selections to be made approximately 7 weeks after the due date, and initiation of funding to occur at the start of FY 1997 (October 1, 1996).

While the above plan represents NASA's intent, it should be realized that future circumstances and events could result in modifications to this schedule.

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Proposal Forms

Below are templates for the following forms and certifications required for proposals submitted in response to this NRA:

- Cover page
- General form
- Certification of compliance with Federal regulations regarding lobbying
- Debarment and suspension certification
- Drug-free workplace certification.

Proposal for High Energy Astrophysics

Supporting Research and Technology Program

NRA 95-OSS-17

Cover Page

Principal Investigator(s)

Title	First Name	Initial	Last Name

Proposal Title

Department

Institution

Street Address | City/Town

State/County | Zip/Postal Code | Country

Telephone | Fax

E-Mail Address: Network Name | Network Address

Abstract (800 characters maximum including spaces ~ 150 words)

Proposal for High Energy Astrophysics

Supporting Research and Technology Program

NRA 95-OSS-17

General Form

Principal Investigator(s)

Title First Name Initial Last Name

Proposal Title

Institutional Endorsement

Name of Official

Administrative Authority

Institution

Signature Date

Co-Investigator(s) Name Institution

Budget Summary by Grant/Project Year

Grant/Project Year	1	2	3	Total
Amount Requested				

CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000, and not more than $100,000 for each such failure.

_____

Signature and Date

_____

Name and Title of Authorized Representative

_____

Organization Name

Certification Regarding
Debarment, Suspension, and Other Responsibility Matters
Primary Covered Transactions

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 34 CFR Part 85, Section 85.510, Participant's responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (pages 19160-19211). Copies of the regulation may be obtained by contacting the U.S. Department of Education, Grants and Contracts Service, 400 Maryland Avenue, S.W. (Room 3633 GSA Regional Office Building No. 3), Washington, DC. 20202-4725, telephone (202) 732-2505.

(1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statues or commission of embezzlement theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

(2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Organization Name PR/Award Number or Project Name

Name and Title of Authorized Representative

Signature Date

ED Form GCS-008 (REV.12/88)

Certification Regarding Drug-Free Workplace Requirements
Grantees Other Than Individuals

This certification is required by the regulations implementing the Drug-Free Workplace Act of 1988, 34 CFR Part 85, Subpart F. The regulations, published in the January 31, 1989 Federal Register, require certification by grantees, prior to award, that they will maintain a drug-free workplace. The certification set out below is a material representation of fact upon which reliance will be placed when the agency determines to award the grant. False certification or violation of the certification shall be grounds for suspension of payments, suspension or termination of grants, or government wide suspension or debarment (see 34 CFR Part 85, Sections 85.615 and 85.620).

This grantee certifies that it will provide a drug-free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

(b) Establishing a drug-free awareness program to inform employees about -
  (1) The dangers of drug abuse in the workplace;
  (2) The grantee's policy of maintaining a drug-free workplace;
  (3) Any available drug counseling, rehabilitation, and employee assistance programs, and
  (4) The penalties that may be imposed upon employees for drug abuse violations in the workplace;

(c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);

(d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will -
  (1) Abide by the terms of the statement; and
  (2) Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five days after such conviction;

(e) Notifying the agency within ten days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction;

(f) Taking one of the following actions, within 30 days of receiving notice under subparagraph (d)(2),with respect to any employee who is so convicted -
  (1) Taking appropriate personnel action against such an employee, up to and including termination; or
  (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

(g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraph (a), (b), (c), (e), and (f).

Organization Name PR/Award Number or Project Name

Name and Title of Authorized Representative

Signature Date

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NASA Research Announcement (NRA)/Announcement of Opportunity (AO) Mailing List Update

If your current address is NOT up-to-date, please fill out this form completely.

This is the update form for the NASA Office of Space Sciences (OSS) NRA/AO mailing list. Please fill out CONTACT INFORMATION completely. Check only those that apply in Institution Type and Discipline. Fold the form, secure with tape, and mail it back to the address on the reverse side. Proper postage must be applied.

Please check which announcements you would like to receive:

- ☐ 1. NASA Research Announcements (basic, non-flight, on-going research)
- ☐ 2. Announcements of Opportunity (specific space flight mission)

Must check one, please include code number from mailing label:

- ☐ 1. Please *add* my name to the mailing list.
- ☐ 2. Please *remove* my name from the mailing list (please attach mailing label)
- ☐ 3. Please *update* my current listing.

CONTACT INFORMATION If your address has changed or your mailing label is incorrect, please provide *COMPLETE* contact information.

Code Number: (obtain from mailing label) | Salutation: (Mr.,Mrs.,Ms.,Dr.,Prof.,etc.) | Suffix (Ret.,PhD.,Jr.,III,etc.)

First Name: | MI: | Last Name:

Organization:

Division / Department:

Street:

City: | State: | Zip:

Telephone No: | Fax No:

E-Mail Address: _____ Internet Address: _____

Country: (foreign addresses, please specify)

Institution Type
(check only those that apply)

- ☐ 1. College or University
- ☐ 2. Minority College or University
- ☐ 3. Foreign Addressee
- ☐ 4. Minority Business
- ☐ 5. NASA HQs/Center
- ☐ 6. Nonprofit Corporation
- ☐ 7. Other Government Agency
- ☐ 8. Private Industry
- ☐ 9. Small Business

Societies:

- ☐ A. American Astronomical Society
- ☐ B. American Geophysical Union
- ☐ C. Others _____

Discipline:
(check only those that apply)

1. Astronomy and Astrophysics

- ☐ A. Theory and Modeling
- ☐ B. Instrumentation (Technology Dev)
- ☐ C. Laboratory Astrophysics
- ☐ D. Data Analysis (Archival)
- ☐ E. Observational Programs

2. Solar System Exploration

- ☐ A. Planetary Atmospheres and Astronomy
- ☐ B. Planetary Materials and Geochemistry
- ☐ C. Planetary Geology and Geophysics
- ☐ D. Instrument Development
- ☐ E. Origins of Solar Systems
- ☐ F. Exobiology

3. Space Physics

- ☐ A. Cosmic and Heliosphere Physics
- ☐ B. Solar Physics
- ☐ C. Magnetospheric Physics
- ☐ D. Iono-Thermo-Mesospheric Physics

4. Information Systems/Computer Science

- ☐ A. High Performance Computing and Networking
- ☐ B. Scientific Data Analysis and Visualization
- ☐ C. Science Data Storage and Management
- ☐ D. Software Technology

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